TREES
Magazine

BOOK CADILLAC HOTEL
16TH NATIONAL SHADE TREE CONFERENCE
UNLOAD EXHIBITS HERE
WILLIAMS & HARVEY
IRISH
SCHRAM
AMERICAN FLORIST SUPPLY
THATS THE BAR WOOD
I OUGHT TO HAVE "SHORTY" MATHEWS HERE - THEN WE'D BREAK THIS TIE.
OH! FOR ANOTHER CYLINDER
C.E. SMITH
KARL DRESSEL
WELCOME GANG!
BOY-THIS IS A BIG CITY! HOPE I DON'T GET LOST
I HATE CAVITY FILLERS - ME FOR THE SIMPLE WAY
A.M. LEONARD
BARTLETT MFG.
WACHTEL SUPPLY CO.
H.K. PORTER
CAL. SPRAY CHEMICAL
GRASSELL CHEMICAL FERTIGATOR
H.E. MUENCH
THIS IS THE YEAR WE CONVERT ARMSTRONG OR BUST-EH! ORVILLE
DON'T SAY BUST, RED THAT MAKES ME SHUDDER
MAYBE BARNEY BARTLETT WILL HAVE HIS SIGNS HERE THIS YEAR
HOPE THEY HAVE PLENTY OF BIG BLACK CIGARS FOR ME WHEN I READ THIS REPORT
BOY, I SURE MISS THAT FLORIDA WEATHER - EVEN IF IT IS EXAGERATED.
J. KEHEALY
IF ANY ONE EVEN MENTIONS GOLDENROD TO ME I'LL MOW 'EM DOWN.
J.M. BENNETT
PAT PIRONE
DOG. TILFORD
CHAS. IRISH
GEO. LEWIS
R. WEAKLEY
N. ARMSTRONG
I'LL PLANT THESE CALIFORNIA POPPIES TODAY - THEN TOMORROW WHEN THEY BLOOM I WONT BE HOMESICK
SOME ONE HAS GOT TO TELL ME ABOUT THE PLANE DISEASE
L. CHADWICK
Doc. NEWINS
KER-CHOO!
RAG-WEED!
SAM BAXTER
J. LIGHT
J. SHIELDS
J. COOKE WHITE
BOB THOMPSON
FRED EATON
O. SPICER & RED JACOBS
FRANK HANBURY (POET)
LIME HOWE
WHY DIDN'T THEY HOLD THIS CONFERENCE IN A GOOD TOWN LIKE TOLEDO
NAW. YOU MEAN LETS GO TO SANTA MONICA IN '42. SCANLON SEZ THAT'S GODS COUNTRY
TREES MAGAZINE SHADE FOR THE NATION
ED. SCANLON
WHERE'S THE TREES?
C. CRAWFORD
ROGER SONNER
BILL SPEED
TRUCK MARSHAL
VAN WORMER
BOB CUNNINGHAM

Sixteenth National Shade Tree Conference, August 27-30, 1940, Detroit, Mich.

NATIONAL STREET TREE SURVEY

THE CAUSE AND ORIGIN OF WEEPING TREES — *John C. Swartley*

July, 1940

"PREVENT FOREST FIRES"

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● Hardie sprayer mounted on a motor truck used for application of spray solution for mosquito or weed control

● Saving of valuable ornamental and forest trees from destructive infestations is only one of the many uses counties, municipalities and park departments find for their Hardie sprayers. The consensus of many modern executives is that a Hardie sprayer is one of the first necessities of up-to-date administration. Many specialized models and styles to fit every individual requirement as to capacity, performance and price. Let us send you the catalog. The Hardie Mfg. Company, Hudson, Mich., Portland, Ore., Los Angeles, Calif., New York City.

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NOW You Can Erect or "Knock Down" This TREE MOVING CRANE ON YOUR TRUCK in 10 Minutes*

● Put it up or knock it down in fastest time! Operators praise the new Gar Wood Tree Moving Crane—simple, light, safe and low in cost. The unit consists of an all-steel platform body, tool boxes, adjustable jacks, universal sheave block, complete rack sides, Gar Wood Mead Morrison 3MB Winch with niggerhead, two speed forward and reverse power take-off, all controls and Crane complete with wire rope.

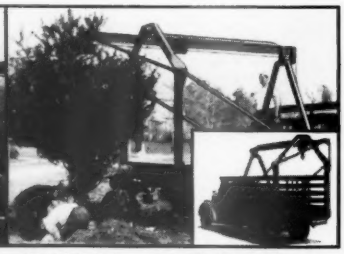
Write now for descriptive Bulletin W148.

**according to user's report.*

Above: The Winch rapidly raises the Crane into position. The new Crane is ideal for Aborists and Tree Experts.

PREPARING TO RESET. Tree balls up to six feet and three tons are quickly picked up.

READY TO LOWER. When the Crane is removed, platform is left clear for other work.



SET IN PLACE. Inset: The Rack Sides may be carried with or without the Crane in place.

GAR WOOD INDUSTRIES, INC.
Mead Morrison WINCH DIVISION
DETROIT, MICHIGAN

TREES Magazine is a Quarterly Journal published at Santa Monica, California, by the Scanlon Publishing Company, and is devoted to the technical and business administration of Trees (Street and Ornamental); Parks (Municipal and National); and Forests (State, National and Private), in the U. S. Editorial and Business Address, 114 Santa Monica Boulevard, P. O. Box 886, Santa Monica, California. Telephone 54827. Subscription by mail, $1 per year. Advertising rates upon inquiry. Unsolicited manuscripts must be accompanied by postage return.

ALONG THE WAY

With . . .
ED SCANLON

■ A. "BOB" THOMPSON, the PARK SERVICE FORESTER, was an unexpected, welcome visitor the other day. We had just swung into high gear in a super bull session, when in popped DANA BOWERS, CALIFORNIA HIGHWAY LANDSCAPE ENGINEER. From there on it was "fine." Took a trip down to San Diego and the THOMPSON got some nice colored pix of "CHERCE" CALIFORNIA FLOWERING TREES.

* * *

■ *Thanks again to BILL ERDMAN, of OMAHA. Bill donated two subs to friends of his, saying "WE CAN'T AFFORD TO LET THIS MAG GO ON THE SHELF." He means TREES, of course. It won't, Bill!*

* * *

■ There's a whole lot of satisfaction in publishing TREES (ASIDE FROM RECEIVING ADVERTISING CONTRACTS). One receives many letters from nice people and makes some real friends. There's a lot of nice people in the world and we are real grateful for the expressions of appreciation of our efforts to put out a magazine that will be a little help in promoting a better understanding, appreciation and knowledge of trees.

* * *

■ *DOC WINTERS, the SASSY M. C. AT THE SEVENTH WESTERN SHADE TREE CONFERENCE BANQUET. Why, Doc, who ever heard of a "deciduous dance"? But that dance kinda had some chair edges being used. Whoa!*

* * *

■ ERNEST ZEVITAS of BROOKLINE, MASS., joins our subscriber family because he says TREES helps him keep in touch with others in the "limb removing fraternity." THANKS, ERNIE, that's WHAT TREES GOT BORN FOR. If it falls down, holler.

* * *

■ *Wonder why Jackson & Perkins Co., in one of their tree ads in the National Shade Tree Conference Proceedings, instead of saying, "From ACER to ULMUS our line is complete . . ." didn't say, "From ACER to ZELKOVA." Very funny!*

* * *

■ The National Street Tree Survey is liked by JOHN B. WOODRUFF, a recent PATHOLOGY GRAD AT SYRACUSE. From all indications, John, the chart data should be the most worthwhile collaboration done in this field to date.

* * *

HELP!

■ *Won't someone please, please help us locate some trees? We need pictures of these trees so would like to know the location, street and town where they can be seen. In at least an advanced enough stage to show mature characteristics:*

Carpinus Betulus fastigiata—Gingko biloba fastigiata—Liriodendron Tulipifera pyramidale—Quercus robur fastigiata—Ulmus Americana columnaris—Acer saccharum monumentale—Acer rubrum columnare—Populus alba Bolleana—Sophora japonica pendula.

Many thanks, Amigos!

* * *

■ We like homespun Wendell Willkie for President. He's no: an English-coated internationalist, but a good American speaking, self-made business man. Packs a punch in either hand, has common sense, a radio personality second to none, both in delivery and because he utters not baloney.

■ *When GEO. CHAPMAN, BEVERLY HILLS PARK SUPERINTENDENT, goes after anything he doesn't fool. The way he is rounding up NEW WESTERN SHADE TREE CONFERENCE MEMBERS is a caution—FIVE SUSTAINING MEMBERSHIPS in the first BLITZKREIG! Wait 'til he gets warmed up. GOOD SPIRIT, GEORGE! EVERYBODY COULD HELP A LITTLE if they set out to do so.*

* * *

■ SWAIN NELSON & SONS NURSERY in Glenview, Ill., sent a nice picture of GINGKO BILOBA FASTIGIATA. These fastigiate forms intrigue me. There should be a broad field for their use, particularly on narrow streets. Imagine the fall flame of a column formed by ACER RUBRUM COLUMNARE! Or the golden yellow of GINGKO!

* * *

■ I sure walked right into a nice lunch of luscious homebaked beans at the SANTA ANA BOTANIC GARDEN MEETING. MRS. DALE GRIGGS sure serves 'em delectable. No wonder that guy is so healthy! Incidentally, CARL WOLF and GEORGE CHAPMAN sort of went for those beans on each side of me.

* * *

■ *B. L. POTTER, owner and manager of the POTTER NURSERIES, with offices at 2715 Fifth Avenue, Huntington, W .Va , has purchased a 203-acre farm on the north side of U. S. Route 60, nine miles east of Huntington.*

The purchase of the large farm on the national highway was made necessary due to the rapid expansion of the POTTER NURSERIES.

* * *

■ A beautiful phenomena occurs in FLORIDA and CALIFORNIA each year at about this time—the Jacarandas bloom (*Jacaranda mimosaefolia*). Picture a nearly bare tree with rounding head up to FORTY FEET HIGH covered with LAVENDER BLUE PANICLES OF BIGNONIA-LIKE FLOWERS—in all the world there is no more beautiful sight.

* * *

■ *Now a note from A. B. STITT of Minneapolis, Minn., with his sub renewal, that he likes TREES but thinks we are a little strong on California trees. Well, after looking over the last four issues, A. B., I wish you would do the same. Don't think I do not appreciate criticism, but in DR. CHADWICK'S TREE SERIES he has only used eastern material; in the last issue only "Odditrees" was a western tree. I had hoped to have the beginning of a fine series in this issue by DR. DONALD WYMAN, which will classify the numerous elms, but an unfortunate illness of his mother, which we sincerely hope is minor, made it impossible for him to prepare the first article. We'll try harder, though, to satisfy.*

* * *

■ Many thanks to PROF. RALPH CURTIS of CORNELL UNIVERSITY, for the splendid cooperation on my S.O.S. for pictures of the Fernleaf beech. Right back at me! Hope you need something from CALIFORNIA, PROFESSOR!

* * *

■ *Received some fine publicity on the NATIONAL SHADE TREE CONFERENCE from D. F. HAYMAN, of Detroit, the other day. Excerpts of the papers. BETTER BE THERE!*

■ I hope I never get too old and feeble to walk around an arboretum or botanic garden. The other day the CALIFORNIA ASSOCIATION OF PARK ADMINISTRATORS held their meeting at the RANCHO SANTA ANA BOTANIC GARDEN. My first visit, I blushingly admit, but I was amazed and delighted at the splendid job that has been done there in a short eight years by DR. CARL WOLF and his staff headed by PERCY C. EVERETT.

Did You See Our Exhibit at the Seventh Western Shade Tree Conference?

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Penetrating SEAL

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Remains plastic indefinitely.
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Used by Municipalities and Cemetary Associations.

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Write for illustrated catalog

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July, 1940 A Quarterly Journal Volume 3—No. 3

ADVERTISING REPRESENTATIVE—McClanahan & Co., 295 Madison Ave., New York

EDWARD H. SCANLON, Editor
Editorial Office: 114 Santa Monica Boulevard, Santa Monica, California

"No place is complete without trees. A home without trees is charmless; a road without trees is shadeless; a park without trees is purposeless; *a country without trees is hopeless*"

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CORDIALLY YOURS

CITY FORESTRY IN OCTOBER ISSUE

Without a doubt City Forestry and the opportunities it offers for accomplishment is one of the most fascinating phases of Arboriculture.

It has its headaches and heartaches too, but then where is Utopia? We will pass over this stage because the accomplishments in this field are only realized once the obstacles are overcome.

All cities, large and small, are more or less alike. Buildings, street cars, automobiles, people—not much to distinguish from there, or to make one city stand out from another. But —suddenly we come upon a town that realizes the commercial value of *beauty*. They realize the loveliness, the charm and *attractiveness* of *healthy, vigorous, well-kept* street trees.

What is uglier than a well designed, architecturally beautiful building facing on the broad expanse of a bare pavement? Nothing. But, place a row of well selected trees between that building and the bare concrete and we have an unbelievable transformation. The harsh lines are softened by the soft green and rounded contours of the trees. Shadows play on the building and street to give highlights which give charm and attractiveness.

The layman may not realize why he dislikes a certain neighborhood or locality, but when he comes upon a neighborhood dominated by shade trees there is no question in his mind as to what makes him like it—the trees.

City Foresters and Park Superintendents are engaged in this work of making their cities distinctive. TREES will be devoted to this work in its October issue. Because very few cities have realized the tremendous possibilities of scientific planning in the planting and care of street trees, we hope we may by this beginning in TREES, touch off a spark that in issues to come and years to come, we may help to fan into a blaze of activity.

To date City Forestry has been subjugated to a minor role in the general park department policy. There are a few exceptions; however, well planned and well kept streets of trees can and will have a far greater economic reaction in a city's real estate values than a great park system. The latter is indispensable of course, but, more people are affected and impressed by street trees either in passing through a city or in their daily pursuits.

MUNICIPAL VS. PRIVATE NURSERY

American men are well known and highly regarded for their ability to give the other fellow's "side of the story" every consideration when a matter of mutual importance arises.

Of recent years the controversy between nurserymen and governmental agencies over the nurseries conducted by many of the latter group, has caused much dissension and has been, in many cases, an obstacle in the path where complete amity might have redounded greatly to the interests of both parties.

TREES invites comment from parties in both fields, and in an early issue will try to have a representative of each group present their respective cases. There are many good arguments for both sides, but we will let the representatives bring out "both sides of the story."

GOOD HABITS

A failing among arborists, park men and others working with trees is that they have not acquired the habit of keeping an accurate written check on various phases of tree preservation where they have occasion to divert from recognized and accepted methods.

To acquire the habit of carrying a notebook in one's car for the special purpose of recording all out of the ordinary experiments; observations of peculiarities in certain varieties —taking note of location; and other data that might later prove of great value is a very worthy accomplishment.

Another worthwhile habit is to carry a camera and snap pictures of fine specimens; agencies causing disorders; fine streets of trees; structural defects; surface roots disrupting curbs and sidewalks; good cavity, bracing or cabling work; all of these subjects may be useful to one later and particularly are these subjects useful to publications such as TREES. It is very difficult at times to secure suitable photographs to illustrate specific phases of some articles, but if workers in the field were to snap pictures occasionally and send them to the Editor, it would help the profession as a whole by possibly clearing up some very important points that might come up on an important job some time.

Acquire these two good habits. You may help someone else and vice versa.

The Plea of a Tree

By FRANK R. HANBURY
Arboriculturist, Peoria, Ill.

I wonder when the time will come
When Trees are recognized
As living, breathing, growing things
Somewhat alike to you and I.
Food, air and water they must have
Or they will surely die.

Trees in city planting zones
Are so unlike their former home.
For there upon the forest floor
Nature's moisture, food and air are stored.

Alas! in city planted streets
There's only pavement at their feet.
Can't you see why they cannot thrive
As Nature's ways are so defied?

Surely now we can agree,
Man can, and must supply their needs.
As well fed trees, with proper care
Supply a beauty always there;
Winter, Summer, Spring or fall
There's grandeur there possessed by all.

Newton Drury Heads National Park Service

Selection of Newton B. Drury of California for the post of Director of the National Park Service was announced by Secretary Ickes, following receipt of a request from Arno B. Cammerer that he be relieved of those duties for reasons of health.

"The Park Service is fortunate in having secured the acceptance of Newton B. Drury for the post of Director. Mr. Drury is outstanding in the field of conservation occupied by the National Park Service and is a nationally recognized authority on park affairs. He has been intimate with the work of the National Park Service and in his post as executive head of the Save the Redwoods League of California, has already been of great assistance to the Park Service and is known to many of the National Park Service executives," said Mr. Ickes.

ODDITREES

The Davey Cucumber

This oditree should stir some long dormant memories among tree men all over the country, of a chilly, early spring morning, clustered around the "Cuc" waiting their turn to do their stuff.

The famous shinny tree used by The Davey Tree Expert Company at Kent, Ohio, as a preliminary test of new applicants' ability to climb, first came into use about 1920.

For almost a generation now its bark, worn slick and glassy, has proven a stumbling block to many attempting to reach the first limb which is about 20 feet from the ground.

Now we are told by Geo. H. White, that because the famous tree (Magnolia acuminata) has grown "paunchy" with age and no longer is it possible to even try to encircle it with straining arms and legs, it will be retired for life.

In a recent cartoon, Ripley's "Believe It or Not," it was captioned "The Most Climbed Tree in the World." A worthy title for a tree that brings back memories to many a Davey "skinner."

—*Courtesy Davey Tree Expert Company*
A Rabble tries his luck with the aging Cucumber Tree

FLOWERING EARTH: Donald Culross Peattie. G. P. Putnam's Sons, New York. 260 pp. $2.50.

Here the layman is told in a very interesting style what the scientist sees when he looks at nature. Mr. Peattie tells what the paleobotanist learns from his "chipping and peering." It relates a beautiful philosophy of how to get all from your surroundings, no matter how limited they may be. Splendid reading.

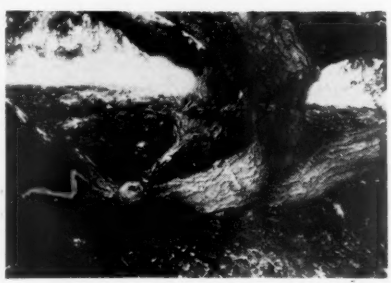
The Cause and Origin Of Weeping Trees

By JOHN C. SWARTLEY
Dept. of Horticulture, Ohio State University, Columbus, Ohio

He who has a love for plants is indeed fortunate. Such a person is not dependent upon artificial distractions to relieve the monotony of life. The artistically minded can use them as the painter uses his oils, to express his own personality and ideas. Others who are not as artistic but are nevertheless imbued with the creative instinct can use a technique in accord with the laws of nature and produce new and perhaps better plants. Still others enjoy plants as they are, observing their seasonal changes, perhaps studying their unique characters. Trees, due to their solidity and relative permanence offer wonderful opportunities for this last kind of enjoyment. Neither are they as stable and unvariable as one may think. Even among our native species, there are many variations which are extremely interesting and also useful, especially in landscape planting. One untypical character which has appeared in numerous species of trees is the weeping character. Because the habit of weeping is so universal* and at the same time so unmistakable, we have chosen to attempt to explain the cause and origin of weeping trees. To further amplify the matter of variation in the minds of our readers, we shall pay some attention to the various kinds of weeping habit that one can expect to find within one species, namely Canada hemlock.

First let us clearly distinguish between environmental and hereditary variations. The spruces that assume a procumbent habit near the tops of mountains have been distorted from their true character by their environment. When they grow taller, their branches are torn by the wind. The height to which they grow is determined by the velocity of wind they can endure and still survive. They are literally kept clipped by the wind. Such plants will not retain that low habit if transplanted to a more favorable location, neither will seedlings of these plants display the low habit of growth under ordinary conditions. On the other hand, certain dwarf trees of mountainous regions are dwarf because of heredity. A good example is the Mugo pine, a dwarf variety that grows naturally over quite a large area in Europe. This type probably originated as a sport and because of its nature, was better able to withstand the rigors of its environment and competition with other plants better than the species itself. Therefore, it multiplied and has become what the botanists call a geographical variety. Mugo pine retains its dwarf habit under any conditions and when grown from seed, will produce truly dwarf plants, although these will vary somewhat in degree of dwarfness. Such heritable variations must be distinguished from the thousand and one chance variations that are due to differences in fertility, space in which to grow and damage such as the breaking out of a leader or the grazing of stock. The environment may often definitely affect the ultimate development of the individual but that effect will not be carried over to the progeny.

—*Photograph by John F. Cornman*
One of the original plants of Sargent Weeping Hemlock collected by General Joseph Howland near Fishkill, N. Y. This is located at Craig House, Beacon, N. Y., former estate of General Howland



—*Photograph by A. M. S. Pridham*
Trunk detail of the original tree of Sargent Weeping Hemlock at Craig House

These two kinds of variations are often confused in the minds of persons who are unfamiliar with the real nature of the underlying principles. Years ago people thought that by changing the plant from one kind of soil to another kind, or by otherwise markedly altering the conditions under which plants grew, that they could thereby change the nature of the plant itself and obtain new types with changed hereditary characters. But according to the principles of plant breeding this is not the case. A variation, in order to be real, must have resulted from an actual change in the hereditary materials. In any plant or animal, these materials are the bridge which enables the plant to become the seed parent of another plant, or a pair of animals to become the parents of a third. The hereditary materials are called genes or determiners and in plants, they are carried in the pollen grains and in the egg cells. These hereditary genes or determiners are definite material things which alone are capable of giving rise to all of the many plant characters. Each individual plant is the final expression of what these particles of matter were able to do when given suitable conditions under which to grow and develop. Therefore a real heritable variation in plants must

—*Photograph by the Author*
The Kelsey Weeping Hemlock, illustrated by one of the three like seedlings found near East Boxford, Massachusetts

*More than 100 kinds of weeping trees are listed in Rehder's "Manual of Cultivated Trees and Shrubs."

arise through a change in the hereditary determiners that are usually referred to as genes.

We designate this gene change as a sport or mutation. In all probability, the

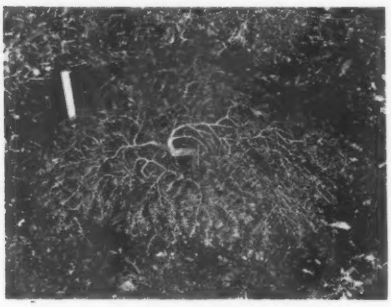
—*Photograph by the Author*

The Amawalk Weeping Hemlock, illustrated by one of two like seedlings in the Amawalk Nurseries, Amawalk, N. Y.

weeping varieties of trees are mutations although their genetical character has not been studied experimentally. But we have good evidence of the validity of this assumption from the behaviour of other plants that have been extensively studied. As has been indicated, genes are the units which are responsible for transmitting the various plant characters from one generation to the next. Usually, like gives rise to like but occasionally, perhaps only once in ten thousand times, a gene suddenly changes or mutates. This change may occur in the pollen, in the egg cell, or in all of the cells of a bud. If the change or mutation occurs in the pollen or in the egg cell before the egg cell has been fertilized, it is called germinal because the germ cells are involved. If the mutation occurs in the egg cell any time after fertilization or if it occurs in a bud, it is called somatic because the soma or body cells are involved. Thus it is often difficult if not impossible to determine whether a given mutation is germinal or somatic. Even a bud sport can not always be detected. For example, a seedling Carolina hemlock in the Kelsey-Highlands Nursery produced a lateral branch with very untypical foliage. Several years ago, the leader was removed just above this branch and the sporting branch has become the leader. All evidence will undoubtedly be effaced within a few years and no suggestion of the origin of this mutation will be apparent.

We are not much concerned as to whether a mutation is germinal or somatic. The important and significant point is that both kinds of mutations are heritable in plants. This may be illustrated as follows.

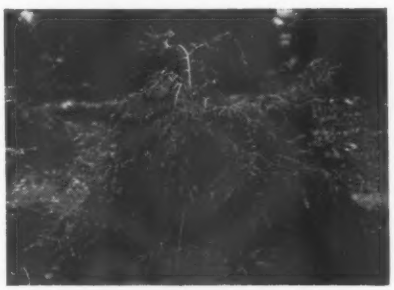
For each character, there are one or more pairs of genes, one member of each pair coming from the pollen parent and the other member coming from the egg-



—*Photograph by H. R. Cole*

Cole's Prostrate Hemlock in the nursery of Gray and Cole, Haverhill, Mass. Discovered by H. R. Cole on Mt. Madison

cell parent. This may involve a single flower on one plant, two flowers on the same plant or two flowers on different plants depending upon circumstances and the nature of the species. Since the weeping hemlock is so well known, suppose we arbitrarily choose this variation. Let "AA" represent normal hemlock and assume that "A" is the gene for the normal habit of branching and "a" the gene for the weeping habit of branching. Most mutations are recessive, therefore the



—*Photograph by the Author*

The Van Heiningen Weeping Hemlock in the South Wilton Nurseries, Wilton, Connecticut . . . A Spontaneous Seedling

small letter is used to indicate recessive characters. Suppose "AA" changes to "Aa," usually only one gene mutates at a time. This may occur in the pollen and thus some pollen grains will have the factor "A" and others the factor "a." If a pollen grain with the gene "a" fertilizes a normal egg cell, with the gene "A," the resulting embryo, if it matures and germinates, will produce a tree that has the genetical character of "Aa." Likewise the same change could have occurred in the egg cell with the same result. Assuming that the character for the weeping habit of branching is recessive, the above "Aa" tree will appear normal although actually, it is of heterozygous or mixed character. According to laws of heredity originated by that modest nineteenth century monk, Gregor Mendel, this tree is potentially able to give rise to other trees which will display that weeping character. And it is not too much to expect that in accordance with these same laws of heredity, at least some of these second generation weeping trees will perpetuate the weeping character in 100 per cent of their progeny.

The genes or determiners for all of the plant characters are represented in each and every cell of the plant. Suppose that on a heterozygous plant of "Aa" character, each "Aa" cell in a bud mutates again and becomes "aa" in character. This branch then displays the weeping habit of growth. Some bud mutations are undoubtedly dominant, therefore these can appear on normal homozygous trees. Bud mutations can occur in other ways but the explanations are so complex and theoretical that they will not be treated here.

However, the occurrence of bud mutations is a well established fact although the writer is not aware of any weeping plants which can be traced to that origin. Many of our most highly valued fruit varieties have originated from bud mutations. The Navel orange is a noted example and many of the variations of the Delicious apple can be directly traced to bud mutations. Many ornamental tree varieties have doubtless originated in this way although records have not been kept as with fruit trees. We can draw conclusions from one type of bud variation that is very evident, namely certain of the so-called witches' brooms. Contrary to popular belief, by no means all of these queer growths can be attributed to the work of some organism or virus. These exceptions which have been described as bud mutations by a prominent German authority, C. F. von Tubeuf of

(*Continued on page* 13)

Gingko Biloba In Kentucky

By THOMAS B. CLAXTON
Assistant Superintendent,
Cave Hill Cemetery, Louisville, Ky.

The Gingko has a history which is found in the records of the rocks. Long, long ago, preceding the coal period, when ferns and palms were trees, many species grew on this earth. There is proof that it existed with plants now extinct. Today but one species exists—Gingko Biloba, native only in the forests of China. In this oriental country it is planted "to guard temples and other sacred places. There are noble broad branched specimens in the neighborhoods of the temples of Tokio, fully one hundred feet high, with tall, massive trunks six or seven feet in diameter." According to Kaempfer, the first record of the tree was from Japan in 1690. It was introduced into Holland, then into England, and in 1784 by William Hamilton into his garden containing rare trees near Philadelphia.

The leaves of the Gingko are spread out like a lady's fan, resembling closely in form those of the maidenhair fern; hence it is often called the maiden-hair tree. The leaves are thick and leathery, turning a dull golden yellow in the autumn. This tree is of noble type and quite high bred. In form it is wonderfully attractive, making an excellent tree, valuable for its shade as well as its beauty.

The fruit resembles a persimmon, not nearly so palatable, however. It contains a nut much like an apricot seed, the surface of which is satiny, the color of old ivory. We are told that the nuts, roasted or boiled, are sold in the markets of China and Japan. So rare were these seeds at one time in Kentucky that a few years ago $100 worth of shrubbery was given in exchange for the seed from the tree growing on the grounds of the old Military Institute at Farmdale, near Frankfort, Ky., owned by Dr. John Stewart.

—*Photograph by Harry Lynn*
Gingko Tree on the lawn of L. P. Averill
Frankfort, Kentucky

Upon resumption of friendly relations with Japan in the early 1800's a great many gifts were sent to the State Department in Washington. On one occasion there was a collection of Gingko saplings. There were three of these saplings sent by Henry Clay, the renowned statesman, to three of his friends in Kentucky—one in Lexington, one in Elizabethtown and one in Frankfort.

During the presidency of General Jackson there were two little girls from Frankfort, Jane Julian Page and Jacqueline Page, visiting in the home of the Postmaster General in Washington. Upon their return home their mother, Mrs. Jane Briggs Page, who possessed an unusual interest in rare and beautiful plants, was made the recipient of one of these rare saplings. Upon receipt, it was planted in the side lawn of the Page-Averill homestead on Washington Street.

The accompanying photograph shows the tree as it appears today. The trunk is approximately three feet through and is nearly ninety feet in height and spread. Truly a beautiful and historic specimen.

Through the courtesy of Mr. Robert Campbell, Superintendent Emeritus of Cave Hill Cemetery, and one or two others, seeds have been distributed throughout Louisville and the state. There are about 125 specimen Gingko trees in parks, home grounds and cemeteries of Louisville, and thousands of seedlings coming on.

Let's plant more of these beautiful trees. The thick leathery leaf is insect proof and the clean trunk is never attacked by beetles.

Respectfully submitted, with grateful acknowledgment to Miss Rebecca Gordon Averill for historical sketch and Miss Emelie Yunker, Supervisor of Nature Study, Louisville Public Schools, for her interest and cooperation.

Western Shade Tree Conference

The Shade Tree Clinic inaugurated at the recent, and very successful, Seventh Western Shade Tree Conference struck an instant chord of response among those attending and resulted in a splendid two hours of pro and con discussion.

Chairman for the Clinic was M. H. Kimball of the Los Angeles County Agricultural Department, and the numerous questions were capably handled by H. Dana Bowers, Landscape Engineer, California State Highway Department; W. S. Rowland, Peck & Wadsworth, Inc., Los Angeles; Paul Gruendyke, Los Angeles County Forestry Department; Roger Sohner, Arborist, San Anselmo, and Ted Holderness, City Forester, Pasadena. As was to be expected in this first attempt, several rough spots appeared but they can be ironed out easily at the next Conference in San Jose next May. The decision to continue the clinic as part of the program was voted unanimously.

An addition to the clinic has been suggested: the park superintendent of the host city will select a very sick tree under his jurisdiction, and on the tour usually conducted, the clinic board will diagnose the symptoms and prescribe a program of treatment. The park superintendent will be asked to follow through for the coming year. At the next conference he will report on the reaction to the treatment. This should result in the accumulation of some specific data that should prove worthwhile. It is hoped this can be inaugurated at the 8th Conference in San Jose.

The success of this Conference, with over 200 registrations (from one State) promises greater things, much greater, for the organization now that the value of cooperation has been proven. All of the committees worked hard but the results were worth it.

(*Continued column 3, next page*)

A Message From Karl Dressel

An invitation to Park Superintendents, Arborists, City Foresters, Utility Foresters, Greenskeepers and Cemetery Superintendents to attend the Sixteenth National Shade Tree Conference.

The Sixteenth National Shade Tree Conference will be held August 27-30 in the Book - Cadillac Hotel, Detroit, Michigan. As President, I would like to take this opportunity to urge all park superintendents, arborists, city foresters, utility foresters, greenskeepers and cemetery superintendents to attend this conference. It is only through the exchange of ideas that we can avail ourselves of the latest information in regard to tree care. It is only through intelligent tree planting that we can plan for the future —not tomorrow, but 75 to 100 years from planting time. With an intelligent, well thought out program we may save ourselves or employers many thousands of dollars in the future. Not only should there be an intelligent, well thought out planting program but also just as important is the yearly maintenance program. An intelligent yearly maintenance program over the years will save many thousands of dollars and many costly mistakes that cannot be valued in dollars and cents.

The National Shade Tree Conference is an excellent medium for the exchange of these new ideas and the meeting of the outstanding men in the United States in the shade tree field. The papers presented at the conference are the latest and most up-to-date information on shade trees and their care. These papers are presented by the outstanding men of the profession.

This year's papers cover most of the arboriculture field, such as diseases, insects, wound dressings, city forestry problems and tree care.

The field trips in Detroit and Wayne County, as well as the field demonstration of new equipment, will be of special interest to all shade tree men. The City of Detroit and Wayne County have had a trained staff and carried on up-to-date arboricultural practices for a great many years with excellent results. Many of the places near Detroit have excellent examples of outstanding arboriculture work, in the city parks, cemeteries and golf courses. Why not plan to attend the National Shade Tree Conference as a part of your vacation, making it both recreational and educational? This would be an excellent time to see the arboricultural work of the Middle West.

Again on behalf of the National Shade Tree Conference I would like to extend a most cordial invitation to all who are interested in shade trees to attend this year's National Shade Tree Conference.

—Karl Dressel, *President*

Tentative Program for the Sixteenth Annual Shade Tree Conference

TUESDAY, AUG. 27

a.m. Registration.
A half day with the exhibitors.
9:30 a.m. National Arborists' Association. Closed meeting for members only.
12:00 m. An opportunity to attend Rotary, Kiwanis, Lions, etc., Clubs.
1:30 p.m. Cars leave for a trip through River Rouge and Wayne County Parks Development.
4:00 p.m. Visit Dearborn Village.
8:00 p.m. National Arborists' Association. Michigan Night. An informal party.

WEDNESDAY, AUG. 28

9:00 a.m. Formal opening.
Invocation.
Address of welcome by Mayor of City of Detroit.
Raising the Standards of Tree Experts. Frank Hanbury, 126 Bradley St., Peoria, Ill.
9:30 a.m. Comparative Costs of Shade Tree Preservation Practices. W. S. Speed, Columbus, Ohio (tentative).
10:00 a.m. Business meeting.
11:00 a.m. Address: Mr. W. J. Cameron, Director of Public Relations, Ford Motor Company.
12:00 m. Busses leave Book-Cadillac Hotel for Belle Isle Casino for lunch.
2:00 p.m. Demonstration.
Evening. Boat trip on steamer Put-In-Bay on Lake St. Clair. Entertainment and program.

THURSDAY, AUG. 29

9:00 a.m. Nature and Control of Shade Tree Chlorosis. Keith K. Kreag, Board of Park Comm., Lansing, Mich.
9:45 a.m. Wound Dressings. Paul E. Tilford, Ohio Exp. St., Wooster, Ohio.
10:30 a.m. (Open—tentative).
11:15 a.m. City Forestry Problems. Paul Sandahl, Des Moines, Ia. (tent.).
1:30 p.m. Some Troublesome Pests of Conifers. J. S. Houser, Ohio Exp. St., Wooster, Ohio.
2:15 p.m. Diseases of Oaks and Verticillium Wilt of Woody Plants. J. C. Carter, Ill. Nat. Hist. Survey, Urbana, Ill.
3:00 p.m. Diseases of Shrubby Plants. P. P. Pirone, N. J. Exp. St., New Brunswick, N. J.
4:00 p.m. Application of Surgery to Blister Rust Infected Trees of Ornamental Value. J. F. Martin, Div. of Plant Dis. Control, Bureau of Entomology and Plant Quarantine, U.S.D.A., Washington, D.C.
7:30 p.m. Annual Banquet. Entertainment and dancing.

FRIDAY, AUG. 30

9:00 a.m. Business meeting.
9:45 a.m. An Apparatus for Soil Moisture Determination. N. L. Partridge, Mich. State College, E. Lansing.
10:30 a.m. Photography for Arborists. Discussion and demonstration of equipment. H. L. Jacobs, Davey Tree Expert Co., Kent, Ohio; F. C. Strong, Dept. Botany, Michigan State College, E. Lansing, Mich.
11:15 a.m. Plant Clinic: Planting and Care, Pest Control and Special Problems.
12:00 m. Adjournment.

EXHIBITORS

American Florists' Supply Co., 1335 Randolph St., Chicago, Ill.
Bartlett Manufacturing Co., 3003 E. Grand Blvd., Detroit, Mich.
Bauer Manufacturing Co., Wooster, Ohio.
John Bean Manufacturing Co., Lansing, Mich.
Chipman Chemical Co., Bound Brook, N. J.
Dow Chemical Co., Midland, Mich.
Friend Manufacturing Co., Gasport, N. Y.
Garwood Industries, Inc., Detroit, Mich.
Grasselli Chemical Co., E. I. duPont de Nemours & Co., Wilmington, Del.
Hardie Manufacturing Co., Hudson, Mich.
Muench, H. E., 597 Pacific St., Stamford, Ct.
Peat Import Corp., 155 John St., New York City, N. Y.
Porter, H. K., Inc., Everett, Mass.
Pratt, B. G., 50 Church St., New York, N. Y.
Standard Chemical Products, Inc., 13th and Adams St., Hoboken, N. J.
Standard Oil Co., Chicago, Ill.
Tobacco By-Products and Chemical Corp., Louisville, Ky.
Terminal Sales Corp., Detroit, Mich.

Western Shade Tree Conference

(*Continued from preceding page*)

Special orchids should go to Fred Roewekamp as director-in-chief and president. His staff was composed of W. S. Rowland, Ross McIntire, Ted Holderness, Dale Griggs, Dr. W. H. Chandler, Prof. Robt. Hodgson, H. R. Holbrook, Doc Winters, Geo. Chapman, Henry Crowley, Paul Gruendyke, Gilbert Skutt —they were all in there pitching and now they can be proud of the best Conference in the series to date.

A fine selection was made for the presidency of the 8th Conference in the genial personality of Ray Hartman, owner of the Leonard Coates Nurseries. Ray has been a faithful member from the beginning and promises to make our stay in San Jose beginning next May 15 (16-17) a long to be remembered one. H. Dana Bowers, State Landscape Engineer, was elected Vice-President; Dale Griggs, Superintendent of Parks, Santa Ana, Treasurer, and Edward H. Scanlon, Executive Secretary.

Ten exhibitors struck a new high in this worthwhile phase of the Conference.

TREE PRESERVATIO

National Street

Too many years have passed since a publication relating to street trees has made available vital practical information regarding this important phase of civic development.

It was twenty-eight years ago, in 1912, (if memory serves, my copy of the book is missing), that Solotaroff published his "Shade Trees in Towns and Cities." This was a splendid book and is still valuable reference. However, it is a general treatise of the subject and in the intervening years it is only reasonable to expect that changes have taken place; new equipment introduced, and, that generally an advance in technique and commercial importance of such practice would evolve.

City Forestry has assumed a place of great importance in municipal government and is being stressed, in some cities, with almost the same emphasis as park administration. The trend, however, has not been as fast as the importance of the practice to civic development would seem to justify.

Many reasons could no doubt be advanced for the lag; one is that park men are not the best politicians or business men, and consequently, their budgets do not enjoy the increases each year that less aesthetic-minded governmental department heads are able to sell to the budget makers; another is that perhaps the proper approach to coordinated civic development has been retarded by too much pure aestheticism and not a combination of aesthetic and commerce. Real estate values may be stabilized, which is the crux of a city's prosperity, if zoning and planting are coordinated intelligently. But, there is a third reason upon which the second must be based, without which it is impossible of attaining and which when the value of such a coordination is realized and crystallized should be immediately at hand—it is the compilation of all data regarding street trees so that an intelligent, economic plan can be put into practice.

The second is almost entirely dependent upon the third for realization with authoritative backing up for the Master Tree Plan surveyor—the first is in the lap of the gods.

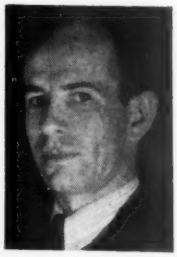
In an attempt to supply data necessary for the adequate development of city thoroughfare margins and parkways,

Chairman Section 4

Mrs. M. B. Kannowski
Supt. of Parks
Grand Forks, N. Dak.

TREES has instituted a National Street Tree Survey.

This survey will be conducted on the basis of dividing the country into the ten



Chairman Section 1

Malcolm A. Milne
Junior City Forester
Rochester, N. Y.

sections indicated on the accompanying map

A Park Administrator or City Forester will be invited to act as chairman of the compilation committee in each section. He in turn will invite a Park Administrator or City Forester in each State in his section to serve as vice-chairman on the committee for that State.

The vice-chairman will then send a letter to every park department in his State inviting them to participate in the data compilation.

This list from each vice-chairman will then be sent to the editorial office of TREES and a large blank chart will be sent to the participant so that he may record the information pertaining *to all street trees* to be found in his city or area.

The blank chart is very comprehensive and contains information under the following headings: Botanical Name; Common Name; Type of Tree; Ultimate Height; Form of Growth; Rate of Growth; Type of Foliage; Color of Flower; Site Factors—Section, Soil, Frost, Water, Wind; Useful Life; Width of Parkway; Distance Apart; Cost to Maintain; Fruit; with various sub-heads.

When all the charts from any one section have been returned to TREES the

Map showing sectional divisions upon which

data will be carefully gone over, an average will be struck for each heading and the figures recorded on a Master Chart. This chart with all of those sent in by participants will then be sent to each of the National Street Tree Com-

National Committee

A. Robert Thompson
Forester
National Park Service
Washington, D. C.

pilation Committee members for their final checkup and approval.

As the charts are completed they will be run in TREES. When the entire series of ten is complete there will be published "The Street Tree Manual." This manual will contain pictures of ideal street tree plantings, factual data on spraying, watering and maintenance programs. It will be a comprehensive guide to this specific phase of Arboriculture.

The general committee who have consented to serve and who will collaborate with the chairman of each of the ten sections, includes: DR. DONALD WYMAN, *Horticulturist, Arnold Arboretum;* DR.

...TION PRACTICES

...eet Tree Survey

...n which survey will be based

L. C. CHADWICK, *Associate Professor of Horticulture, Ohio State University;* A. ROBERT THOMPSON, *Forester, National Park Service;* and H. DANA BOWERS, *Landscape Engineer, Division of Highways, Sacramento, Calif.*

National Committee

H. Dana Bowers
Landscape Engineer
Division of Highways
Sacramento, Calif.

Section chairmen who have already consented to participate and who immediately went into action, are:

Section 1. MALCOLM A. MILNE, *Junior City Forester, Rochester, N. Y.*

Section 3. HOLLIS J. HOWE, *City Forester, Bureau of Parks, Baltimore, Md.*

Section 4. MRS. M. B. KANNOWSKI, *Superintendent of Parks, Grand Forks, N. Dak.*

Section 5. WILL O. DOOLITTLE, *Executive Secretary, American Institute of Park Executives and Editor of "Parks and Recreation."*

Those who have responded to invitations to serve as vice-chairmen for the survey in their respective States follow:

Chairman Section 5

Will O. Doolittle
Executive Secretary
American Institute of Park Executives
Editor,
"Parks and Recreation"
Tulsa, Okla.

Section 1. New York: MARSHALL E. HIGGINS, *Onondaga County Park and Regional Planning Board, Syracuse.*

Chairman Section 3

Hollis J. Howe
City Forester
Baltimore, Md.

Connecticut: JAMES J. CURTIN, *Supt. of Parks, Waterbury.* Maine: EVERETT S. HENDERSON, *Jr. Engineer, Roadside Improvements, State Highway Commission, Augusta.* Massachusetts: DANIEL J. PHALEN, *Supt. of Parks, Salem.* New Hampshire: T. EDWARD MCINTYRE, *Supt. of Parks, Manchester.* New Jersey: THOMAS F. BAKER, *Supt. of Parks, New Brunswick.* Pennsylvania: JOSEPH J. GACKENBACH, *Supt. of Parks, Allentown.* Rhode Island: MARTIN F. NOONAN, *Supt. of Parks, Providence.*

Section 3. Tennessee: S. G. PUGH, *Memphis.* Virginia: FREDERICK HEUTTE, *Supt., Bureau of Parks, Norfolk.* Georgia: C. N. ELLIOTT, *Director, State Parks, Atlanta.* Delaware: Jos. F. JAMISON, *Supt. of Parks, Wilmington.*

Section 4. Nebraska: CHESTER E. AGER, *Supt. of Parks, Lincoln.* South Dakota: S. H. ANDERSON, *Supt. of Parks, Aberdeen.* Minnesota: L. E. LONGLEY, *Prof. of Horticulture and Ornamentals, University of Minnesota, St. Paul.* Iowa: PAUL L. SANDAHL, *Executive Supt., Department of Parks, Des Moines.*

Section 5. Oklahoma: ORRIN W. LETSON, *Botanist, Park Dept., Tulsa.* Texas: DONALD D. OBERT, *City Forester, Fort Worth.*

Participation in this survey is open to anyone, but particularly those engaged in street tree work or tree preservation. Write either to the vice-chairman in your State or directly to TREES.

In all too many cities the practice of using very few species is prevalent. This is a mistake for several reasons. There are too many variations in soil conditions; design makes varying demands; an epidemic, such as the Dutch Elm or Plane disease, can be very expensive—to combat and to replace dead trees, plus the inestimable aesthetic loss. Principally for these reasons, the field of species should be greatly widened. This will be one of the objectives of this survey.

In filling out the chart should you have only one or a few of a species, it is believed that a fair set of requirements for satisfactory performance can be deduced from the condition of the existing specimens. With reports from numerous sections of an area on the same tree, it would seem that a safe guide for use can be obtained, new extensions made in their range and possibly, new zones of hardiness determined.

Two factors in street tree development that go hand-in-hand and compliment one another, are planting distances and maintenance. Because of the almost fanatical desire of the layman to want at least two trees planted in front of his property, even though it may be a 35 foot lot, we have the anomaly of poor design because of twice too many trees to the block, and the resulting doubling of maintenance cost. Maintenance monies for street trees are almost impossible to secure, and being faced with the irony of having had to plant so many trees that smart design is totally lacking and with about half enough money to care for the trees properly, a rather hopeless feeling comes over the administrator. Advanced thinking and planning in street tree design decrees that *the city block or the entire street shall be the unit,* with the individual property only a minor factor. With this in mind, it is hoped that those filling in charts will always keep in mind the mature spread of the various species and allow a fair distance between, so that the mature street will be enhanced

(*Continued on page* 14)

Fernleaf Beech

(*Fagus sylvatica heterophylla*)

Edited by L. C. CHADWICK

Ohio State University

One of the most beautiful of all shade trees is the Fernleaf Beech, *Fagus sylvatica heterophylla*. As I have mentioned before, if I could have only one shade tree and had suitable conditions to assure satisfactory growth, that tree would be the Fernleaf Beech. The European Beech, *Fagus sylvatica*, of which the Fernleaf Beech is a variety, grows to a large tree of about ninety feet in height. It has a wide spreading, twiggy head about as broad as high. It is a native of Central to Southern Europe, but thrives as well as our native Beech in this country. The bark is smooth and gray like our native Beech but possibly not quite as striking in color. The leaves are not as stiff and are nearly entire with a waving margin instead of being sharply toothed. The leaves are arranged in two rows and frequently remain on the tree most of the winter. The Fernleaf Beech foliage is deeply cut, resembling to some extent the leaf of a fern as the common name implies. These deeply cut leaves, together with long pointed scaly buds typical of all Beeches, furnish characteristics used for identification. The flower of the Beech is not important ornamentally; the fruit is a characteristic spiny burr with the nut inside.

Foliage showing characteristic lacinations of the Fernleaf Beech

The Fernleaf Beech is not particular as to soil type provided the soil is loose, very well aerated and contains sufficient organic matter to assure a uniform and ample moisture content. Like all Beeches, it will not stand tramping or compacting of the soil over the roots in any way. If these factors are observed, it is not particular as to wind exposure and should be perfectly hardy.

Propagation of the Fernleaf Beech is usually accomplished by grafting onto three-year seedlings or 2-1 stock established in pots the spring previous to grafting. The best time to graft is January and February in the greenhouse. Propation can also be accomplished by inarching in the nursery field.

A Fernleaf Beech is an excellent lawn tree. While there is no trouble in growing grass under the Fernleaf Beech, it is advisable where not objectionable because of location to use ground cover underplanting of Myrtle, Pachysandra or some similar broadleafed evergreen. This practice assures a loose soil and one that will not bake or become compact as it might if grass were established beneath it. Because of its requirement for a loose, well aerated soil it is not recommended for planting on streets or in parks unless it can be well removed from recreational areas.

Basing its climatic requirements on those of the European Beech it needs a relatively cool climate; however, it is quite probable that it would do well in a somewhat warmer locale. Rehder in his "Manual of Cultivated Trees and

(*Continued on next page*)

—*Photographs Courtesy Cornell University*

Specimen of Fernleaf Beech in Central New York

Fernleaf Beech

(*Continued from preceding page*)

Shrubs" (second edition) gives the zone as IV for *sylvatica*, the species. This zone includes a strip of country including Nova Scotia, Southern Maine, New Hampshire, New York, Michigan, Northern Indiana, Illinois and Missouri, Kansas, Colorado, then north through Utah, Idaho and British Columbia.

(Editor's note: Some excellent specimens of the Purple variety, given by Rehder as *Fagus sylvatica atropunicea* West., are growing beautifully in Southern California, in the vicinity of Los Angeles.)

Weeping Trees

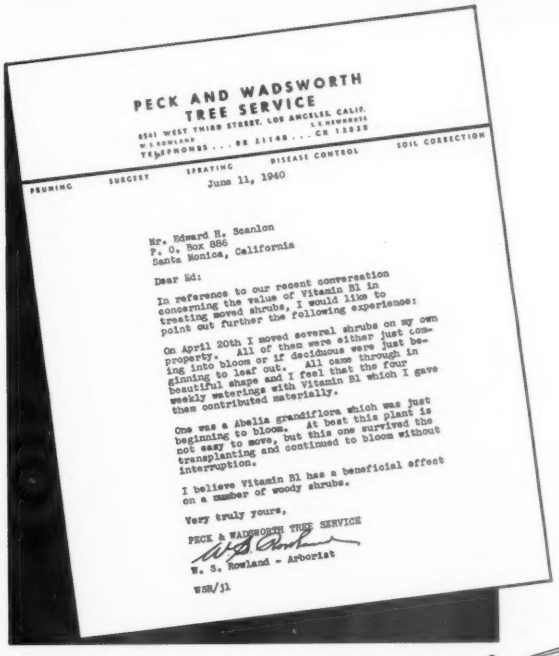
(*Continued from page* 7)

the University of Munich, have been reported mostly in German scientific literature. And it has been proven beyond doubt that heredity has been involved in at least four of these witches' brooms. Occasionally, viable seed is produced on witches' broom branches. Von Tubeuf sowed seed which he collected from such branches on two different trees of Norway spruce and reported that about a third of the resulting seedlings displayed the witches' broom habit of growth. Two other investigators grew seedlings from witches' brooms on pine and also reported that a certain proportion of the seedlings developed the habit of growth of the parent branches instead of the normal trees. The genetics of these witches' brooms is not known since the seed had not been produced by the process of selfing which is the first important step in such a study. But it is logical to assume that the hereditary determiners or genes were involved in making these witches' brooms what they were. There is a limited amount of evidence that an organism can be transferred from the parent to the progeny in the seed but it is highly improbable that this could have happened in the four cases just cited.

In addition to gene change, which may

(*Continued on page* 16)

"At best this plant is not easy to move"



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PRUNING SURGERY SPRAYING DISEASE CONTROL SOIL CORRECTION

June 11, 1940

Mr. Edward H. Scanlon
P. O. Box 886
Santa Monica, California

Dear Ed:

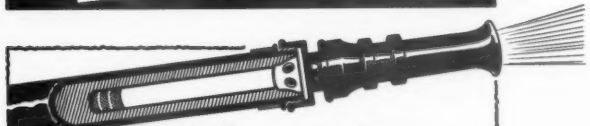
In reference to our recent conversation concerning the value of Vitamin B1 in treating moved shrubs, I would like to point out further the following experience:

On April 20th I moved several shrubs on my own property. All of them were either just coming into bloom or if deciduous were just beginning to leaf out. All came through in beautiful shape and I feel that the four weekly waterings with Vitamin B1 which I gave them contributed materially.

One was a Abelia grandiflora which was just beginning to bloom. At best this plant is not easy to move, but this one survived the transplanting and continued to bloom without interruption.

I believe Vitamin B1 has a beneficial effect on a number of woody shrubs.

Very truly yours,
PECK & WADSWORTH TREE SERVICE
W. S. Rowland - Arborist
WSR/jl



Here's the easiest way to apply Vitamin B1 to large areas

Place from 1 to 6 Thompson's Vitamin B1 Pellets in Thompson's new B1 Vitamizer—insert Vitamizer in any standard garden hose—and spray B1 solution right through hose nozzle or surface sprinkler.

One Thompson B1 Pellet will apply approximately 25 gals. of correct solution in just 6 minutes. Up to 150 gals. (with 6 Pellets), applied in relatively brief periods. Made of brass. Nothing to get out of order. Will last indefinitely. The B1 Vitamizer is engineered for use with Thompson's 1 mg. Pellets, only. Price $1.

Abelia grandiflora

transplanted while blooming

. . . And Mr. Rowland's **Abelia grandiflora** kept right on blooming, too, and will "live happily ever afterward." This is but one of thousands of cases of the successful application of Vitamin B1 to trees, shrubs, flowers and lawns, by professional as well as amateur gardeners.

Invaluable in the practical elimination of root-shock, Thompson's Vitamin B1 provides you with an entirely new weapon in assuring the healthy propagation and care of plants of all species.

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In Pure Crystalline Powder or Pellet Form

Stimulates root growth. Invaluable for newly set trees, shrubs, flowers, lawns—or any planting operation. Easy to apply. So inexpensive you may use it freely in all park work, for emergency jobs, and to achieve rapid, lusty growth in most plantings.

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By Leo Shames
Appalachian Forest Experiment Station
Asheville, N. C.

Part II

Fire protection was not the only serious problem created by the 1938 hurricane in New England woodlands. Nearly as urgent was the problem of salvaging the estimated 2,600,000,000 board feet of felled timber.

The lumber market was temporarily demoralized. If anyone wished to salvage his timber, he could not do so and expect a reasonable financial return. This market uncertainty was aggravated by the need for quick action. The bulk of hurricane-felled timber was white pine, and unless it could be sawed or stored in water within a comparatively few months, insect borers could be depended upon to destroy most of the merchantable volume.

Private initiative was not able or ready to solve the huge problem of timber salvage. No interested individual or group had the finances necessary to manufacture so much lumber in so short a time, and no bank would lend money for such an enterprise without some assurance that lumber prices would be stabilized by the elimination of competitive selling.

When it appeared that no constructive program for salvaging timber in New England would develop, the Secretary of Agriculture authorized the Chief Forester of the United States to administer a government project of timber salvage. Funds for the project were loaned by the Federal Surplus Commodities Corporation to the Northeastern Timber Salvage Administration, a newly-established agency within the framework of the Forest Service.

Thus got under way what is probably the largest and most unique logging operation in man's history.

Delivery sites were designated by the Administration to which privately-owned logs could be hauled and sold upon delivery. The first sites were ponds. Throughout the timber salvage program it has been the policy of the Administration to store the greatest possible log volume in water as a future supply for local wood industries. In all, 269 ponds and lakes were designated as delivery sites in New England. Some ponds received only a few hundred thousand board feet of logs; others received up to ten millions.

Not all log deliveries could be cared for in water sites. White pine and spruce were the only commercial species that would float; other provisions were necessary for hemlock and hardwood. Too, not all white pine and spruce could be delivered economically to water sites.

As a result, delivery sites were established in accessible open fields. These so-called dry sites became very numerous, at the peak of activity totaling 575. Logs were decked up, rolled by men with cant-dogs to heights of 10 feet, 15 feet, or even 25 feet. In some yards, up to 4,000,000 board feet of logs were concentrated at one time.

Logging trucks began to straggle in to delivery sites. When they dropped their loads, a government scaler would measure the contents by the scientifically-accepted International Rule.

Most species were placed into three grades according to their quality with the purchase price of the logs adjusted for the different grades. Minimum top diameter for white pine was set at 6 inches; minimum length was usually 10 feet or 8 feet in the case of grade one logs. Other softwoods were required to be at least 8 inches in diameter and 10 to 12 feet long. Hardwood species were acceptable in 8-foot lengths and under 10 inches in diameter only in the case of white birch and white ash which were acceptable to 8 inches.

The sums paid to timber owners for delivered logs were first set at 80 per cent, then raised to 90 per cent of the stated prices, with the understanding that the owners will receive all or part of the remaining 10 per cent if the Administration can dispose of the logs at a profit. Should there be any additional profits, these will also be turned back to the original timber owners.

The stated prices for white and red pines were $18, $14 and $12 for the three grades established. All hemlock has been purchased at the price for grade 3 pine; all spruce for grade 2 pine. Beech and white birch logs have been purchased in three grades at the stated prices of $20, $14 and $10. All other hardwood species were grouped into three grades with prices at $22, $16 and $12.

Prices paid by the Administration would have left an ample margin of profit in logging standing timber. However, the tangles of blown-down trees were difficult to operate and caused a considerable reduction in profits. At the time of the hurricane it cost about $2 a thousand board feet for felling and bucking, a little over $1 for scooting and snaking the logs to landings and about $2 for trucking to mills within a ten-mile radius, making a total slightly over $5. After the hurricane, logging costs mounted close to an average of $8.50 per thousand board feet. In the more unfavorable instances timber owners realized scarcely any stumpage value from their operations but at least they knew they were preparing their woodlands for a new tree crop and were reducing the fire hazard at the same time.

National Street Tree Survey

(*Continued from page* 11)

and evaluated by the beauty of the characteristic form, and become not merely a mass of foliage and shade.

There are many species that are perfectly suited to certain conditions that now may baffle the street tree planter but regarding which he has no information, and so, hesitates to use such trees as the fastigiate forms of Gingko, Maple, Oak, Beech, Tulip, or the Goldenrain (*Koelreuteria paniculata*), Red Horse-Chestnut, among others.

Additional points to follow are:

1. List all *Natives* and *Exotics* on streets.
2. List commonly used trees on streets.
3. List as many trees as possible—broadleaf and conifer.
4. List trees that are little used but which have promise.
5. Mark "X" in blank squares on chart to designate points to be covered.
6. When chart is completed, return to Trees Magazine, Box 886, Santa Monica, Calif.

For an example of a completed chart, we refer you to the October 1939 issue in which we ran a chart of Southern California trees. This has proven to be of tremendous value to large and small municipalities in its area.

The first completed chart was sent in

(*Continued on next page*)

Park Executives -- Nurserymen

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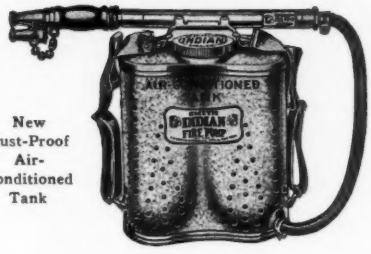

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National Street Tree Survey

(*Continued from preceding page*)

by THOMAS F. BAKER, *Supt. of Parks, New Brunswick, N. J.*, and he was followed closely by: MALCOLM A. MILNE, *City Forester, Rochester, N. Y;* JOSEPH J. GACKENBACH, *Supt. of Parks, Allentown, Pa;* C. A. BOSSEN, *Supt. of Parks, Minneapolis, Minn;* C. O. E. BOEHM, *Supt. of Parks, Davenport, Iowa;* DAVID HOVEY, *Supt. of Parks, Minot, N. Dak;* A. F. HOFFMAN, *Supt. of Parks, Bettendorf, Iowa;* W. LAMONT KAUFMAN, *Supt. of Parks, St. Paul, Minn;* LESLIE H. KIEL, *Supt. of Parks, Rapid City, S. Dak;* E. C. MORAN, *Medora, N. Dak;* FRANK G. STORRS, *Supt. of Parks, Fargo, N. Dak;* FRANK E. KARPICK, *Asst. City Forester, Buffalo, N. Y;* FRANCIS T. G. WHITE, *Supt. of Public Parks Board, Winnipeg, Canada;* EARL H. SHERMAN, *Manager, Park Dept., Duluth, Minn;* GEO. F. WILL, *Bismarck, N. Dak.*

It is hoped that the first chart will be published in the October "City Forestry" issue of TREES. Write now for a chart and participate in this important work.

American Institute Park Meeting

The special program arranged by the Education Committee of the American Institute of Park Executives for the 41st annual convention will be devoted to Trees.

The meetings will be held in Cleveland, starting September 24 and running through the 27th. On the day before the convention opens formally, the delegates will take a special 30 mile trip to Painesville where they will inspect many of the great nurseries of Lake County.

Weeping Trees

(*Continued from page* 13)

be much more complex than the example given, another kind of change may occur. The genes are carried on the chromosomes which occur in a definite and constant number called the chromosome number, for each kind of plant or animal. In some way, during the life history of a plant, this chromosome number may double one or more times producing the condition called polyploidy. Polyploid plants may be freaks or they may be unusually vigorous or productive. For instance, most of our highly valued apple varieties are polyploids. According to Karl Sax (Jour. Arn. Arb., Vol. 14), Pfitzer juniper has 22 chromosomes instead of the usual 11 for *Juniperus*. California big tree (*Sequoia gigantea*) has 21 to 24 chromosomes and the redwood (*Sequoia sempervirens*) about 40 in place of the normal 12. This may at least partially explain the extreme vigor of the Sequoias. Again we do not know whether any weeping trees are weeping because of a polyploid nature. This is merely another possible explanation for change or mutation in plants.

Those of us who are acquainted with the three or four kinds of weeping Norway spruce, fully realize that there may be more than one expression of weeping character within a single species. *Picea excelsa pendula* and *P. excelsa inversa* are both decidedly weeping but the latter is more sparingly branched, producing quite a different effect. *Picea excelsa viminalis* is also more or less weeping in character but quite distinct in appearance from the other two. It is apparently true that any species that produces numerous variations, as for example the Norway spruce and even our common Irish potato, produces all kinds of variations and various kinds and degrees of the same variation. This is undoubtedly due to such phenomena as the operation of the principle of multiple factors and the crossing of mutations with the normal species or with other mutations.

To illustrate variations of weeping habit within one species, the writer has chosen Canada hemlock which he has studied in some detail. *Tsuga canadensis pendula* has been almost exclusively associated with Sargent weeping hemlock which has been known and highly prized for many years. This is a dense bushy

—*Photograph by A. M. S. Pridham*

The Abbott Weeping Hemlock, located in an open woods near Athens, Vermont. This tree was found by Frank L. Abbott

plant, broader than high, with pendulous branches. The largest known specimen, one of the original four collected by General Joseph Howland near Fishkill, New York, about 1867, measures 33 feet in circumference and more than 10 feet in height. A. B. Stout, in a recent issue of the Journal of the New York Botanical Garden (Vol. 40, 1939), described and illustrated another plant of somewhat similar habit which had not been previously reported in the literature. This plant is located near a small farmhouse only a few miles from the original site of the four seedlings discovered by General Howland and may possibly be a sister plant. The fact that a number of individuals of similar habit were found in the same locality suggests that they originated as seedlings from some mutation further back in the hereditary line. Following this sequence of thought, it is interesting to note that Dr. Stout reported growing 25 plants from seed collected on a plant of Sargent weeping hemlock at the New York Botanical Garden in 1916. All but one are pendulous. Dr. Stout also reported that some 2000 plants of Sargent weeping hemlock have been grown from seed in Holland and all are pendulous. This seed had been collected from a graft of one of the original plants, therefore at least one of the original plants is homozygous for the weeping character.

Dr. Stout described another quite different type of weeping hemlock called the Kelsey weeping hemlock. This is more tree-like with an asymmetrical head and very pendulous branches. It was discovered with two other like plants near East Boxford, Massachusetts, and is now located in the Kelsey-Highlands nursery. Seedling origin is also suggested here and is substantiated by neighborhood reports that a large tree with similar habit originally existed in the vicinity.

Only one other type of weeping hemlock has been found in duplicate. This is the Amawalk weeping hemlock which is represented by two collected plants in the Amawalk Nurseries, Amawalk, New York. These are bushy like Sargent weeping hemlock but differ in shape and habit. They are 7 feet tall and about as broad with the lateral branches gracefully drooping and the upper branches and branchlets twisted and contorted.

Single plants of other different types of weeping hemlock have been observed by the writer in various places. The most outstanding is the Outpost weeping hemlock which originated among collected stock in the Outpost Nurseries, Ridgefield, Connecticut. This is a very decorative, nearly symmetrical tree with less pendulous branches and more pendulous branchlets than Sargent weeping hemlock.

A plant which was probably similar to the Outpost weeping hemlock has been mentioned in the literature. A. D. Webster, author of Hardy Coniferous Trees published in 1896, made the following comment after *Tsuga canadensis pendula*: "Rare, does not differ from the species, save in the long, weeping spray, the branch tips hanging gracefully downwards for in most cases a couple of feet. Finest specimen is by the lake at Hollydale, Earl of Derby's Kentish property. It is fully 20 feet high and has borne cones abundantly."

Several years ago, Frank L. Abbott found a small weeping tree of Canada hemlock near his summer home at Athens, Vermont. This has also been previously mentioned by A. B. Stout in the Journal of the New York Botanical Garden. It is a 16 foot bushy tree with two trunks and rather irregularly pendulous branches.

One of the most extreme of the weeping hemlocks is located in the South Wilton Nurseries, Wilton, Connecticut. This is a small spontaneous seedling about 3 feet tall and just as broad. The branches and branchlets are contorted,

(*Continued on next page*)

Weeping Trees

(*Continued from preceding page*)

producing much the same effect as the weeping English beech.

Another extreme type which has been treated under *Tsuga canadensis prostrata* is a true dwarf. This interesting plant was collected by H. R. Cole near the bottom of Mt. Madison, Coos County, New Hampshire, in 1929 and was transplanted to the nursery of Gray and Cole, Haverhill, Massachusetts. The trunk, which is about 1 inch in diameter at the base, emerges from the ground at less than a 45 degree angle, then becomes horizontal and splits into several branches whose tips bend directly downward as though drawn by the force of gravity. The age of this plant is obviously 35 to 50 years although it is only 6 inches high and less than 2 feet in diameter. This dwarf weeping plant is undoubtedly similar to the original plant which received the name of *Tsuga canadensis prostrata.* The name was applied to a "perfectly prostrate variety . . . quite distinct in habit from Sargent weeping hemlock" by W. J. Bean in Trees and Shrubs (Vol. III, 1933). Mr. Bean observed this plant in the garden of a Mr. Renton, Perth, Scotland, in June, 1931.

Still another type of weeping hemlock may be mentioned. This is among collected stock in Dauber's Nurseries, York, Pennsylvania. It is 5 feet high and about as broad with less pendulous branches than Sargent weeping hemlock. It is rather dense in form but is very graceful with drooping branches and delicate foliage.

By no means all of the variants of weeping hemlock have been mentioned, merely those that are distinct in character. The group is sufficient to cause one to marvel at the variety of weeping characters that have occurred without man's intervention in one species of plant. And since little is actually known about the origin or cause of weeping trees, we shall have to satisfy ourselves with the theoretical conjecture that has been offered. At least, it is a logical explanation of what might have occurred to bring about these extraordinary variations.

Fire Pumps For Park and Roadside Fire Protection

The greatly increasing number of fires in recent years in Park areas, Nurseries and along roadsides has resulted in the adoption by officials in these fields of the use of Indian Fire Pumps.

The usual type of portable fire equipment, both chemical and water, has been found inadequate because of the lack of pressure. The Indian Fire Pump, originally designed for forest fire work, because of its powerful manual trombone pump, shoots a powerful stream up to fifty feet.

Hot, dry summers in park areas and recreation sections generally present fire problems due to careless picnickers and campers, and park executives are realizing the value of supplying all park trucks and tool houses with an adequate number of these powerful fire fighters.

An unusual, but very practical use for which Indians may be found very worthwhile is by the Arborist, Park Man or Nurseryman, where he has only one or several medium size trees to spray. It would be expensive to run out a big motorized sprayer, whereas, the versatile Indian with its ability to shoot a powerful fifty foot stream will do the job with telling force and minimum economy.

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Authors and Books

The following books may be ordered from TREES Magazine, Box 886, Santa Monica, California.

TREE CLEARANCE FOR OVERHEAD LINES, by G. D. Blair. Haywood Publishing Co., Lafayette, Ind. 238 pp. Illus. 1940. Price, $3.75.

More publications of this nature dealing with a specific phase are needed in the field of tree preservation. This splendid book, even though the author is employed by a utility company, presents a very impartial approach to the entire field of line clearance. A recap of the chapter headings will give a clearer picture of the thoroughness with which Mr. Blair has filled this text: Overhead Line Construction; Economics of Line Clearance; Proper Tree Care; Tree Form Types and Growth Rates; Standard Clearances; Highway and Street Requirements; Laws and Regulations; Public Relations; Trimming; Organization and Personnel; Equipment; Safety.

Being the first work of its kind it should be in every park department and highway department, as well as in the library of every arborist who wants to keep informed.

MANUAL OF CULTIVATED TREES AND SHRUBS, by Alfred Rehder. Second edition, revised and enlarged. The Macmillan Co., San Francisco and New York. 996 pp. 1940. Price, $10.50.

Merely to mention that this edition is now available will suffice for everyone who works with trees and shrubs, for since the advent of the manual twelve years ago, it has stood with the necessaries of all horticultural libraries—Bailey and Sargent. The number of new species listed is 200, but to quote from the author's preface:

"During the twelve years which have elapsed between the publication of the first edition and this new edition, a large number of new species and varieties have been introduced and many new hybrids have appeared in cultivation, and changes in names have become necessary owing to more intensive study of certain groups by various authors and by the writer himself, and also owing to amendments and changes in the International Rules of Botanical Nomenclature adopted by the Botanical Congresses in 1930 and 1935. All this has made necessary numerous additions to the plants described; in some instances, as in Rosa and Rhododendron, the whole genus had to be rewritten which increased the fully-described species in the latter genus from 61 to 85. The descriptions have been revised and the author citations have been made more exact by adding in parenthesis the author of the original specific or varietal name; the general term var. as a subdivision of the species has been replaced by the exact category given by the author of the combination.

Probably the most drastic change noted was the creation of a new genus for the Sierra Redwood, or big tree. The new name is *Sequoiadendron* and the species *giganteum*, Buckholz. This change requires plenty of optimism for it will probably be many a year before the change will be accepted in the West —if ever.

Another addition that must be made to your tree library.

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Thru the Microscope

By Dr. C. J. Humphrey

NEW FACTS CONCERNING THE SYCAMORE DISEASE: The sycamore disease caused by *Ceratostomella* .. sp. which has killed hundreds of trees in the Philadelphia and Baltimore areas has recently been been found in Newark, N. J., South Charleston, W. Va., Magnolia N. C., and Williamsburg, Va., according to Walter and Mook (7). Trees affected at Vicksburg, Miss., West Charleston and Williamsburg have been identified as *Platanus occidentalis*. The initial external symptom on recently exfoliated bark areas is a dark brown or black discoloration, usually elongated with the grain of the wood. On areas with more outer bark the first noticeable symptom is an elongate depression beneath which the inner bark is darkened. Infections may occur high in the crown as well as on the trunk. Branches "flagging" in August and September on trees having no trunk lesions had infections practically one year old. *Of 45 branch infections studied 26 were associated with small pruning cuts. The disease has been transmitted experimentally with pruning saws.*

ELM DISEASES: These continue to engross the attention of pathologists. Arnaud (8) states for France that 50 young *Ulmus campestris* in an infected area showed only two uninfected trees, vigorous trees suffering the most. When the tops killed by the Dutch elm disease were cut out the trees remained healthy for a time, sprouted vigorously, but soon became reinfected. Some objections to the view that the disease is spread by *Scolytus* beetles are advanced.

Leach (9) reports on the fungi associated with *Scolytus multistriatus* (carrier of the Dutch elm disease) in southwestern West Virginia where the Dutch elm disease has not been found, and concludes that conditions exist that will be conducive to rapid spread of that disease if and when it gains access to the region. The beetle is multiplying rapidly in elm trees killed by phloem necrosis.

A detailed discussion of the relation of wounds to infection by the fungus of the Dutch elm disease is given by Tyler, Parker and Pope (10). This is largely a record of laboratory investigations. Coremia (a spore stage of *Ceratostomella ulmi*) are often produced on infected fields and planted elms and on decadent elms not apparently infected. Spores are easily dislodged by water sprays or rain water, but not so easily by air currents. Infection was easily obtained in potted American elms by introducing spores into fresh wounds that extended into the wood of roots, trunks and branches; also when applied to the surface of wood freshly exposed but uninjured; occasionally when introduced into leaf traces and injuries on midribs and succulent parts of shoots. It did not result from spores applied to unwounded surfaces or in cortical wounds not reaching the wood. The age and healing of wounds had a marked effect on entrance. Trees inoculated during their active growth period were extensively invaded; before this period they frequently became infected but invasion was slight; after this period they usually became infected and some were extensively invaded, these dying back little or none at all. Infection was more frequent through wounds on aboveground parts held under high moisture conditions than under drier conditions.

ARMILLARIA MELLEA: The biological control and ecology of *Armillaria mellea* are again discussed by R. Leach (11) with reference to Nyasaland, where it is a serious disease of tea and other hosts. Here, as in other parts of tropical Africa, *Armillaria* develops rhizomorphs sparsely and infection is largely caused by contact of diseased forest tree roots, left in the soil on clearing the original forest, with the healthy tree roots. Since there is little lateral spread between the young tea bushes, the present practice is to replace plants in the early stages of attack. After about seven years the infected patches may start to recover and in twelve years the disease may have disappeared.

While this method of control is of some assistance it is still far from satisfactory. The basic problem is to prevent *Armillaria* from infecting those roots of forest trees that remain in the soil after clearing. Ring-barking of the trees prior to felling, in order to deplete the roots of carbohydrates to such an extent that they cannot be invaded by *Armillaria* but at the same time can be readily destroyed by fungi not injurious to the tea plant, is suggested. The efficacy of the method is considerably supported by observation and experimental evidence.

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(7) Phytopath. 30, No. 1, p. 27. 1940; (8) Ann. Epiphyt, N S.. 1, p. 41. 1939; (9) Phytopath. 30, No. 1. p. 15. 1940; (10) Phytopath. 30, No. 1, p. 29. 1940; (11) Trans. Brit. Mycol. Soc. 23, No. 4. p. 320. 1939; Plant Dis. Reporter 24, No. 9. p. 168. 1940; Plant Dis. Reporter 24, No 7, p. 149.

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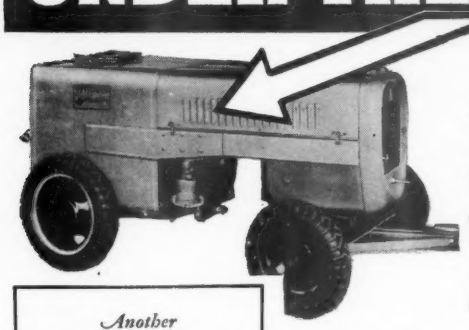

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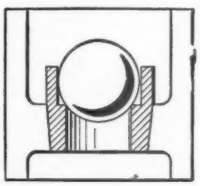

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VOLCK Summer Oil Sprays
ORTHOL-K Summer Oil Sprays
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